

A complete listing of all claims in this application is set forth below.

Claims

Please cancel claims 1-26.

1. (Cancelled) A water temperature selection and control module for a washing machine comprising:

a processor;

a selector operative to allow a user to select a water temperature setting for the washing machine;

selector circuitry/logic in communication with said selector and said processor, said selector circuitry/logic operative to provide a signal representing the selected water temperature setting; and

said processor is operative to receive said selected water temperature setting signal and produce a control signal in response thereto, said control signal operative to control water flow into the washing machine.

2. (Cancelled) The module of claim 1, wherein said processor and said selector are provided on a single board.

3. (Cancelled) The module of claim 1, wherein said processor is further operative to receive a washing machine sensor signal and produce said control signal in response to the selected water temperature setting signal and the washing machine sensor signal.

4. (Cancelled) The module of claim 3, wherein said washing machine sensor signal comprises one of a water level sensor signal and a water temperature sensor signal.

5. (Cancelled) The module of claim 3, wherein said washing machine sensor signal comprises a water level signal from a water level sensor and a water temperature signal from a water temperature sensor.

6. (Cancelled) The module of claim 1, wherein said selector comprises a knob and knob assembly.

7. (Cancelled) The module of claim 6, wherein said selector is operative to provide a plurality of selectable water temperature settings.

8. (Cancelled) The module of claim 1, wherein said selector comprises a potentiometer and said water temperature setting signal comprises a variable resistance signal.

9. (Cancelled) The module of claim 1, wherein said control signal is operative to control water flow via a valve actuation signal.

10. (Cancelled) The module of claim 9, wherein said valve actuation signal comprises a solenoid actuation signal.

11. (Cancelled) In a washing machine, a method of solid state water temperature selection and control comprising the steps of:

- receiving a water temperature setting signal from a water temperature selector of the washing machine;
- processing the received water temperature setting signal;
- producing a control signal in response to the received water temperature setting signal; and
- providing the control signal to a water valve of the washing machine.

12. (Cancelled) The method of claim 11, further comprising the step of:

- receiving a washing machine sensor signal from a washing machine sensor; and

wherein the step of producing a control signal in response to the received water temperature setting signal further includes producing the control signal in response to the received water temperature setting signal and the washing machine sensor signal.

13. (Cancelled) The method of claim 12, wherein the step of receiving a washing machine sensor signal from a washing machine sensor comprises receiving a washing machine sensor signal comprising one of a water level signal and a water temperature signal respectively from a water level sensor and a water temperature sensor.

14. (Cancelled) The method of claim 11, wherein the step of receiving a water temperature setting signal from a water temperature selector of the washing machine comprises receiving a water temperature setting signal from a water temperature selector comprising a knob and knob assembly.

15. (Cancelled) The method of claim 14, wherein the step of receiving a water temperature setting signal from a water temperature selector comprising a knob and knob assembly includes receiving a water temperature setting signal from a water temperature selector comprising a knob and knob assembly that provides a plurality of selectable water temperature settings.

16. (Cancelled) The method of claim 11, wherein the step of receiving a water temperature setting signal from a water temperature selector comprising a knob and knob assembly includes receiving a water temperature setting signal comprising a variable resistance signal from a potentiometer.

17. (Cancelled) The method of claim 11, wherein the step of providing the control signal to a water valve of the washing machine comprises providing the control signal to solenoid.

18. (Cancelled) A solid state water temperature selection and control module for a washing machine comprising:

a circuit board;

a processor mounted to said circuit board;

a selector mounted to said circuit board and operative to allow a user to select a water temperature setting for the washing machine; and

selector circuitry in communication with said selector and said processor, said selector circuitry operative to provide a signal representing the selected water temperature setting;

said processor operative to receive said selected water temperature setting signal and produce a control signal in response thereto, said control signal operative to control water flow into the washing machine.

19. (Cancelled) The module of claim 18, wherein said processor is further operative to receive a washing machine sensor signal and produce said control signal in response to the selected water temperature setting signal and the washing machine sensor signal.

20. (Cancelled) The module of claim 19, wherein said washing machine sensor signal comprises one of a water level sensor signal and a water temperature sensor signal.

21. (Cancelled) The module of claim 19, wherein said washing machine sensor signal comprises one of a water level signal from a water level sensor and a water temperature signal from a water temperature sensor.

22. (Cancelled) The module of claim 18, wherein said selector comprises a knob and knob assembly.

23. (Cancelled) The module of claim 22, wherein said selector is operative to provide a plurality of selectable water temperature settings.

24. (Cancelled) The module of claim 18, wherein said selector comprises a potentiometer and said water temperature setting signal comprises a variable resistance signal.

25. (Cancelled) The module of claim 18, wherein said control signal is operative to control water flow via a valve actuation signal.

26. (Cancelled) The module of claim 25, wherein said valve actuation signal comprises a solenoid actuation signal.

Please add claims 27-42.

27. (New) A modular washing machine control comprising:

- a circuit board;

- a processor mounted on the circuit board, the processor having input lines and output lines;

- a water valve driver mounted on the circuit board and being operatively coupled to the processor so that the processor operates a water valve by generating a signal on an output line of the processor that is coupled to the water valve driver;

- a water temperature selector mounted on the circuit board and operatively connected to the processor so that a signal generated on the circuit board by the selector is received by the processor and used to control the signal on the output line to the water valve driver; and

- a housing mounted to the circuit board to enclose the water temperature selector, water valve driver, and processor so that the water temperature selector, water valve driver, and processor may be mounted to the frame of a washing machine as an integral unit.

28. (New) The modular control of claim 27, the selector including:

- a potentiometer mounted on the circuit board; and

- a shaft extending through the housing and operatively coupled to the potentiometer so that rotation of the shaft varies the resistance of the

potentiometer and generates a variable signal on the circuit board for the processor to determine the water temperature for a washing machine.

29. (New) The modular control of claim 28, the processor further including:

an analog-to-digital input coupled to the potentiometer for converting an analog signal received from the potentiometer to a digital value;

an internally stored lookup table; and

the processor determining the selected water temperature by selecting a water temperature from the internally stored lookup table in accordance with the digital value for the analog signal received from the potentiometer.

30. (New) The modular control of claim 29 further comprising:

a temperature sensor operatively coupled to the processor, the sensor for sensing temperature of water downstream of a water valve coupled to the water valve driver and for generating a temperature signal received by the processor; and

the processor generates the signal coupled to the water valve driver in accordance with the water temperature selected from the internally stored lookup table and the temperature signal received from the temperature sensor.



31. (New) The modular control of claim 30 further comprising:
- a detent/position clip; and
  - a series of detents carried by the shaft that engage the detent/position clip as the shaft is rotated to generate positive rotational stops for the shaft rotation that correlate to water temperature selections.
32. (New) A method for forming an integral machine control module for mounting to the frame of a washing machine comprising:
- mounting a processor having input lines and output lines on a circuit board;
  - mounting a water valve driver on the circuit board and operatively coupling the water valve driver to the processor so that the processor operates a water valve by generating a signal on an output line of the processor that is coupled to the water valve driver;
  - mounting a water temperature selector on the circuit board and operatively coupling the water temperature selector to the processor so that a signal generated on the circuit board by the selector is received by the processor to control the signal on the output line to the water valve driver; and
  - enclosing the circuit board in a housing so that the water temperature selector, water valve driver, and processor may be mounted to the frame of a washing machine as an integral unit.

33. (New) The method of claim 32, the selector mounting including:  
    mounting a potentiometer on the circuit board; and  
    extending a shaft through the housing so the shaft is operatively coupled to the potentiometer whereby rotation of the shaft varies the resistance of the potentiometer and generates a variable signal on the circuit board for the processor to determine the water temperature for a washing machine.

34. (New) The method of claim 33, the potentiometer mounting further including:

    coupling the potentiometer to an analog-to-digital input of the processor to convert the signal from the potentiometer to a digital value;  
and

    selecting a water temperature from a lookup table internally stored in the processor in accordance with the digital value.

35. (New) The method of claim 34 further comprising:

generating a signal corresponding to a temperature of water downstream of a water valve coupled to the water valve driver mounted on the circuit board; and

generating a signal with the processor for controlling the water valve driver in accordance with the water temperature selected from the lookup table.

36. (New) The method of claim 35 further comprising:

locating a series of detents about the shaft; and

mounting a detent/position clip proximate the series of detents so that the detent/position clip engages the series of detents as the shaft is rotated to generate positive rotational stops for the shaft rotation that correlate to water temperature selections.

37. (New) A modular washing machine control comprising:

a circuit board;

a processor mounted on the circuit board, the processor having input lines and output lines;

a water valve driver mounted on the circuit board and being operatively coupled to the processor so that the processor operates a water valve by generating a signal on an output line of the processor that is coupled to the water valve driver; and

a water temperature selector mounted on the circuit board and operatively connected to the processor so that a signal generated on the circuit board by the selector is received by the processor and used to control the signal on the output line to the water valve driver.

38. (New) The modular control of claim 37, the selector including:

a potentiometer mounted on the circuit board; and

a shaft extending from the potentiometer and operatively coupled to the potentiometer so that rotation of the shaft varies the resistance of the potentiometer and generates a variable signal on the circuit board for the processor to determine the water temperature for a washing machine.

39. (New) The modular control of claim 38, the processor further including:

an analog-to-digital input coupled to the potentiometer for converting an analog signal received from the potentiometer to a digital value;

an internally stored lookup table; and

the processor determining the selected water temperature by selecting a water temperature from the internally stored lookup table in accordance with the digital value for the analog signal received from the potentiometer.

40. (New) The modular control of claim 39 further comprising:

a temperature sensor for sensing temperature of water downstream of a water valve coupled to the water valve driver and for generating a temperature signal; and

the processor generates the signal coupled to the water valve driver in accordance with the water temperature selected from the internally stored lookup table and the temperature signal received from the temperature sensor.

41. (New) The modular control of claim 40 further comprising:
- a detent/position clip; and
  - a series of detents carried by the shaft that engage the detent/position clip as the shaft is rotated to generate positive rotational stops for the shaft rotation that correlate to water temperature selections.
42. (New) The modular control of claim 38 further comprising:
- a housing mounted to the circuit board to enclose the potentiometer, water valve driver, and processor so that the potentiometer, water valve driver, and processor form an integral unit.